PHILADELPHIA NEUROLOGICAL SOCIETY.

Stated Meeting, October 22d, 1888.

THE VICE-PRESIDENT, CHARLES K. MILLS, M.D., IN THE CHAIR.

Dr. WILLIAM OSLER presented a

NOTE ON PACHYMENINGITIS HEMORRHAGICA.

There are several points of interest in this condition:

First. Is it in any sense of the term an inflammatory process? Practically, we see one of three conditions in these cases:

a. Subdural vascular membranes, often of extreme delicacy.

b. Simple subdural hemorrhage.

c. Combination of the two—vascular membrane and blood-clot.

In two specimens which I showed last year at the Pathological Society, I remarked on the absence of any of the features to which we could apply the term inflammatory.

Dr. Joseph Wiglesworth, in the January number of the *Journal of Mental Science* for this year, takes the same ground. Apart from injuries, dura-arachnitis is rare. I have seen two instances in the specific fevers. In both there was delicate fibrinous exudate between the dura and the arachnoid.

Second: Which is antecedent, vascular membrane or hemorrhage?

It is usually stated that the hemorrhage occurs first, and from the blood-clot, when organized, the vascular sheet arises. This may be the case, and the fact that subdural hemorrhage is often found alone—in fifteen out of forty-two cases in Wiglesworth's series—lends weight to this view. On the other hand, the vascular membrane may exist without a trace of past hemorrhage; neither staining nor melanin grains, simply a fibrous sheet, varying in thickness and permeated with large vessels. The specimen here shown illustrates this condition: It was removed from a man, aged fifty-six, who died of aneurism. The skull cap was unusually thick and dense and extremely vascular. The meningeal arteries ran in deep grooves through the bone. There were many points of vascular union between the inner table of the skull and the dura. In spite of this, the calvaria was removed without much difficulty. The inner surface of the dura was everywhere covered with a fibrous, highly vascular membrane. Toward the vault it was from half a line to a line and one-half in thickness. Toward the base it was extremely thin. It was chiefly made up of large veins forming in places beautiful arborescent tufts. On section, where the membrane was thickest, the veins bled freely, but there was no trace of clot. Microscopically, the membrane was composed of bundles of connective tissue forming a supporting framework for the numerous vessels. At one small area alone, in the middle fossa on the left side, there was a brownish-red staining on the surface of the vascular membrane.

In the two specimens which I studied last winter the identical condition existed, though in neither was the blood supply abundant, nor the vascular membrane thickened.

Third. Whence the hemorrhage, dural or pial?

I have always thought the former, but I see that Wiglesworth, in referring to the atrophy of the convolutions as a possible cause for hemorrhage, speaks thus: "The pia mater over a variable area may be so intensely congested as actually to resemble an ecchymosis. . . . It is manifest that the conditions may be highly favorable to actual rupture, and I doubt not that this frequently occurs."

Certainly in the instances I have seen the subdural membranes were intimately associated with the dural vessels, and it seems more probable (and is, I believe, generally acknowledged) that from these the hemorrhage always proceeds.

Fourth. The explanation of the occurrence of this singular structure is by no means clear. The cases are commonly met with in asylums. In general hospitals years may pass without seeing an instance. During eight years in the post-mortem room of the General Hospital of Montreal, no instance occurred. The first specimen which I saw, after having been for fourteen years interested in morbid anatomy, was demonstrated by Virchow, in 1884, at the Pathological Institute. At the Philadelphia Hospital cases are by no means uncommon. Within the past two or three months there have been four specimens found, usually in the bodies of persons from the insane department, but in the three instances to which I have referred, the patients came from the medical wards, and had not shown any mental symptoms.

One reason urged why the subdural hemorrhage is much more common in the insane, is the atrophy of the convolutions so constantly associated with this condition. But there must be something more than this, for if atrophy alone is the chief factor, we certainly would meet with it in phthisis and in other cachectic conditions in which the cerebral wasting is quite as common as in general paresis.

The frequency of this condition in asylum work may be gathered from the fact that Wiglesworth's paper is based upon forty-two specimens which occurred in a series of four hundred unselected post-mortem examinations in which the persons died of various forms of insanity. Wiglesworth's contribution is one of the most interestingand valuable that has been made upon the subject.

Dr. F. X. DERCUM asked if Dr. Osler accepted the view of Wiglesworth that this condition of the dura is really due to hemorrhage from the pia. He could not understand how a hemorrhage from the pia could become so intimately connected with the dura. He had always regarded the formation as dural.

He asked Dr. Osler if he had any explanation to offer for the formation of the curious cysts in old cases of pachymeningitis.

Dr. JAMES HENDRIE LLOYD said that Dr. Osler had stated that in the case reported there was aneurism of the aorta. He would ask if there was any connection between the two conditions. Were there any brain symptoms?

The idea had prevailed heretofore that we mostly find this condition in connection with brain troubles such as general paresis, trauma, and chronic alcoholism.

Dr. CHARLES K. MILLS said that the paper was interesting in connection with a case of a child nearly three years of age, with spasms of a peculiar type, for which he advised trephining and the operation was done by Dr. John B. Roberts at the Philadelphia Polyclinic. After the removal of the skull and dura mater, a membrane was found which was easily separated from the pia arachnoid. It was a vascular membrane, between the dura mater and the pia arachnoid. Œdema and great vascularity of the pia mater were also present. After the escape of some serous fluid, the brain apparently receded. The history was that a clock had fallen upon the child's head, and the question was whether or not a slight hemorrhage beneath the dura had not taken place, or whether there might not have been the formation of a membrane without the presence of a clot. It may be that this is the explanation of some of the cases of infantile spasm of peculiar type. This child often had from eight to ten attacks a day. The day after the operation it had two slight attacks, but since then none. He had seen a considerable number of cases of pachymeningitis hemorrhagica at the Philadelphia Hospital, some of which he had reported.

Dr. OSLER did not see how the hemorrhage could be connected with the pia as Dr. Wiglesworth thought. The cases he had seen had been in medical wards, and had presented no indications of cerebral trouble. Atrophy of the convolutions does not always coexist. If atrophy were one of the prime factors in the causation of this condition, we would expect to see it more frequently in phthisis and the chronic cachexias, in which the cerebral wasting is often quite as marked as in general paresis. There is often as much thickening of the pia arachnoid and gelatinous œdema between the convolutions in phthisis as in general paresis, yet, so far as he knows, subdural hemorrhage has not been described in connection with phthisis except in the inmates of lunatic asylums. The condition is rarely met with in general practice. He had himself twelve years' experience in general autopsical work before he saw a case of pachymeningitis hemorrhagica. The first case that he saw was demonstrated by Virchow in 1884, in the Pathological Institute in Berlin. At the Philadelphia Hospital the condition is met with two or three times a month, usually in patients from the Department for the Insane.

Dr. OSLER then presented a communication entitled

INJURY TO THE CAUDA EQUINA AND SYPHILOMA OF THE CORD AND CAUDA EQUINA.

Dr. F. X. DERCUM reported

THREE CASES OF SPINAL ACCESSORY SPASM UNSUCCESSFULLY TREATED BY EXCISION OF THE NERVE.

The following cases were placed on record, not only to confirm the inutility of the treatment by excision of the nerve, but also to provoke discussion on this most distressing affection.

Case I.—J. F., aged forty years, married, and a gas-fitter by trade, presented himself at the Nervous Dispensary of the University Hospital, with the following history: He had had rheumatism at various times, one attack of which had kept him in bed nine weeks. Eight months after this last attack he had rheumatism of the muscles of the shoulders, and then began to have turning of the head to one side, which, up to the time of his first examination, had lasted a year. The movements were at first slight and painless, as they still are, but about one month after their first appearance the movements became excessively violent, coming on in paroxysms, and interfering with sleep. His wife described these attacks as irritable convulsions. However, they were limited to the neck, and were unattended by loss of consciousness. These excessively severe paroxysms were, later on, merely occasional. Short, sharp, jerky movements were, however, never absent. The sterno-cleido-mastoid of the right side felt hard and contracted, and was evidently the principal muscle at fault. Indeed, in the movement observed by us it appeared to be the only one involved, though in the severe paroxysms described by the patient the other neck muscles, doubtless, played a part.

Some years ago, Dr. H. C. Wood successfully treated one of these cases by severely cauterizing the back of the neck with the hot iron; and acting upon this hint, the Paquelin cautery and antimonial ointment were freely used in the present case, but without any relief of the spasm.

Finally, the patient was admitted to the hospital under the care of Dr. Agnew, who excised a portion of the right spinal accessory nerve. The immediate effect of the operation was a disappearance of the spasm, but as this man had left the hospital, in which he remained twenty-five days, the small, jerking, rotary movement of the head had again appeared, and he could discover little, if any, difference in the character of the movement. Whether any of the more severe paroxysms recurred he was unable to say, as the patient has not since been under observation.

Case II.—E. L., aged fifty-eight years, married, a watch-case-maker, likewise presented himself at the University clinic two years ago. When apparently in good health, he commenced to have slight twitching in the neck. This twitching had gradually become marked, and, at the time of making the note, was present in the form of a severe clonic spasm. There was no history of rheumatism or syphilis.

Examination showed that the left sterno-cleido-mastoid and trapezius muscles were affected. The spasm was slow and irregularly recurring, and was accompanied by pain in the mastoid and occipital regions. It interfered greatly with sleep, the patient being kept awake two or three hours after lying down. Phonation also seemed to be occasionally interfered with.

The patient refusing to be cauterized, various internal remedies were prescribed, all without avail. Finally, he was admitted to the surgical wards, and likewise operated on by Dr. Agnew, who again removed a portion of the nerve. However, within a few hours after recovering from the effects of the ether, we might say almost immediately, the spasm recurred, and it persisted during the entire stay of the patient in the hospital, some three weeks. I should remark, however, that the spasm appeared to be less severe. Certainly, the movements were of less extent.

It is exceedingly probable that in this and the preceding case, other muscles than those supplied by the spinal accessory nerve were involved, and to this, in part at least, the failure is to be ascribed. However, I determined to give the method another trial in the following case, which seemed more favorable.

Case III.—M. K., female, aged fifty-five, a housekeeper, presented herself at the clinic with constantly recurring slow spasm of the right sterno-cleido-mastoid. This, she said, had existed for two years. At its commencement she had been in her usual good health. Examination showed the right sterno-mastoid to be markedly hypertrophied, further, that the right trapezius also participated, but to a slight extent. It could not be determined that any other muscle was, or had at any time been involved. The patient complained also of occipital pain, and pain along the dorsal spine.

After a rather prolonged trial of the cautery, galvanism, and various drugs, the knife was again appealed to, Dr. Ashhurst this time being the operator. Owing to the apparently limited character of the spasm, he was hopeful of a good result. Dr. Ashhurst performed an extremely thorough excision, removing over four inches of the nerve-trunk, including not only the supply to the sterno-mastoid, but also that to the trapezius. Previous to making the excision, the nerve was thoroughly stretched, very marked force being used. After the operation, and during the entire stay of the patient in the hospital, some twenty-one days, no spasm whatever was observed. However, that an inference as regards cure would have been altogether premature, was proved subsequently. The operation was performed on the 2d of June, and in the early part of the following August he received a letter from the patient, bitterly complaining that the spasm had returned, saying that it was "very bad again." Of the extent of the recurrence he could not speak with certainty.

Whether in these three cases the recurrence of the spasm was due to the spreading of the affection to other muscles, or to the vicarious nerve-supply of the sterno-mastoid and trapezius, is, he thinks, a matter of minor importance. The belief that these spasms are centric in origin, certainly gathers additional force, and the problem that presents itself is, whether the centres affected are spinal or cerebral, and how this differentiation shall be made. Secondly, whether a more radical surgical treatment should be invoked. These were the points to which he invited discussion.

He purposely refrained from speaking of the morphia treatment of these cases, inasmuch as its application to dispensary patients, who can be so loosely controlled, would be of more than doubtful propriety.

DR. C. K. MILLS added another to the list of unsuccessful cases treated by this operation. On the 6th of this month Dr. Roberts operated on a case which had been sent to Dr. Mills by Dr. Tomlinson, of Wilmington. Dr. Roberts cut down on the spinal accessory nerve of the affected side, and, after identifying the nerve by the faradic current, excised one and a-half to two inches. Two weeks after the operation the patient left the hospital, the spasm somewhat improved, but certainly not cured. Dr. Mills had had a number of these cases, and some years ago wrote a paper on the subject. Two of the cases reported recovered largely under the use of the actual cautery.

One of the questions which arises in a consideration of these cases is whether some of them are cortical in origin, due to lesion of the centres for conjugate deviation of the head. He believed that such a view should be entertained, but probably not for such a case as he had referred to, or for such as Dr. Dercum had reported. The persistence of the spasm and its tonic character in most cases are against the supposition of cortical lesion.

DR. DERCUM said that the point is, How are we to differentiate between the spinal and cerebral cases? If conjugate deviation of the eyes occurred with the movements, there would be reason for supposing that there was a cortical lesion. It is, however, rare to have this association. It was not present in his case.

As an indication of the utter hopelessness of operations on the muscles and nerves, it would be well to bear in mind that the movement is one in which a large number of muscles are involved. There are nine muscles, in addition to the sterno-mastoid and trapezius, which are called into play in the act of turning the head and neck, besides two others which act as rotators at times.

DR. J. H. LLOYD reported the following

CASE OF ALCOHOLIC MULTIPLE NEURITIS,

which presented such a characteristic clinical picture of a disease which is not common, that he was led to report it in spite of the fact that the pathological study was incomplete.

Margaret M., aged about thirty-five years, was admitted into the nervous ward of the Philadelphia Hospital in May, 1888. She had a family history of phthisis on the father's side. The patient had never been very strong, but had had no sickness except the ordinary diseases of childhood. She was married at seventeen and had had four children, the last labor occurring five years before admission. She denied syphilis, and presented no lesions of it. She also denied excessive drinking, but an inquiry of her friends revealed the habitual use of alcoholics, sometimes in excess, from her childhood. Four weeks before admission she awoke one morning to find both feet paretic. For one week preceding this she had had severe pains in both legs.

On examination the following facts were noticed: The patient was anæmic, very despondent in expression, and rather emaciated. She presented double wrist-drop, with wasting of the arm muscles, also more marked on the left side. There was paralysis, quite complete, of the anterior leg muscles on both sides, with consequent foot-drop and wasting. The extensor muscles of the left forearm contracted sluggishly to the faradic and galvanic currents, and showed the serial reactions of degeneration: A.C.C.>C.C.C. The extensor of the feet (muscles especially supplied by the anterior tibial nerves) also reacted sluggishly and showed reactions of degeneration to galvanism. The patellar reflexes were abolished. There were small areas of anæsthesia over the legs and feet. She would believe that a pin was touching the foot when it was touching the leg, and confused the legs. The sensory symptoms were very significant. She suffered from severe burning pain on the soles of the feet, and later in the palms of the hands, causing her to complain. The nerve trunks were acutely sensitive. Pressure over the popliteal and peroneal nerves of the main trunks of the arm was productive of most severe pain. The peroneal nerves especially were sore. The muscles of the leg were extremely sensitive to touch, and those of the calves especially were very tender.

The lungs were normal. The heart presented a faint systolic murmur at the apex ; not always heard, and possibly anæmic(?). The pulse was small in volume, very rapid, constantly ranging from 122 to 140, and easily compressible. Her temperature was constantly afebrile, except on two days, when it rose to $101\frac{4}{5}°$. For more than half the time she was under observation (about four weeks) the temperature was rather subnormal, falling as low once as $96\frac{3}{5}°$. It was taken in the axilla. The loss of appetite was complete, and the tongue was furred. She slept poorly and her mind wandered. At times she was in a well-marked delusional condition, and was restless always and complaining.

The patient, as she lay in bed, with the wrist-drop and foot-drop, bore a striking resemblance to the picture which Gowers, has in his recent work, of a patient with this disease.

The indications for treatment were especially to relieve pain and sustain the power of a failing heart. It was soon evident that the patient would not respond to treatment. The heart, in particular, never improved in its action. Digitalis was given in the form of tincture, infusion, powder, and poultices of the leaves, but the pulse remained rapid and feeble. A full liquid diet was administerred in oft-repeated quantities, but alcohol was not given until toward the last, and then in small doses. It is not necessary to detail all the treatment. Partial relief was obtained from the burning pains in the soles of the feet by lotions of carbolized water; and small cantharidal blisters were used with some benefit over some of the most painful nerves, as the peroneal. The patient gradually sank from a weak heart and died rather suddenly about the end of the fourth week of her sojourn in the hospital.

He regretted to say that the specimens from this case became decomposed, in some unaccountable way, and were unfit for microscopic study. The brain, cord, and affected nerves, clear to their ramifications in the muscles, were removed, and did not exhibit any marked change on gross examination. It was thought that some parts of the posterior columns were sclerosed ; an observation which, he believed, has been made before in some of these cases. The history and observation of the case do not point to an original posterior sclerosis, and it may be a question whether such a change in the cord in a case like the one described could not be secondary to the original nerve lesions. It is also a question whether the obstinately feeble action of the heart in these cases may not be due to changes in the pneumogastric similar to those which occur in the other nerves. The heart was small and the valves normal. The liver was fatty and the kidneys slightly congested and enlarged.

DR. W. T. SHARPLESS reported a case of

EMBOLISM OF THE MIDDLE CEREBRAL ARTERY.—LEFT HEMIPLEGIA, ULCERATIVE ENDOCARDITIS, AND LATE GENERAL CONVULSIONS, AND SKIN INFARCTS.

M. D., aged thirty-one years, married (service of Dr. C. K. Mills, at the Philadelphia Hospital), had nothing special in family history. He had been very intemperate for several years, and there was a probable history of syphilis although he denied it. He had acute articular rheumatism last winter which was his only attack. In March last he was suddenly paralyzed on the left side and entered the hospital on April 18th. His condition Aug. 1st, when he came under Dr. Mills's care, was as follows: Left hemiplegia; paralysis marked on the arm, less so in the leg, and not at all in the face; œdema of feet and legs, extending to the knees. He had a very loud double aortic murmur that could be heard as far down the back as the sacrum. Area of cardiac dullness was very much enlarged, as was also that of the liver and spleen. The urine contained albumen in considerable quantity, and later hyaline, granular, and a few epithelial casts were found. In testing his sensations it was found that he could not perceive a light touch as well on the paralyzed side as on the other; but the sense of pain was preserved. Paralyzed muscles responded to the faradic current and showed no reactions of degeneration. His temperature rose to 101° to 102° every evening and regularly fell to normal in the morning.

On Sept. 6th he had two general epileptiform convulsions, and later he had another of a similar character.

On Sept. 15th petechial spots were noticed on his legs and ankles, which increased in size and depth until his death, which occurred Oct. 15th. These spots varied in size from that of a pin's head to a dime and showed no disposition to heal. They were probably skin infarcts.

Autopsy, October 15th: Right middle cerebral artery close to, but just beyond its orgin in the internal carotid, was closed by an evidently old embolus. All branches of the middle cerebral beyond this were thready and cord-like, and could be distinctly seen lying in a bed of yellowish softening, which extended over the island of Reil and the internal surface of all convolutions which cover in the Sylvian fissure. The cortex of the motor zone, except as just stated, was not softened. A cut through about the middle of the lenticular body revealed softening of the entire breadth of the internal capsule and adjoining lenticular and caudate bodies. This softening was in the middle part of the capsule and did not extend into the anterior and posterior third. Evidently some collateral circulation had been established between cortical branches of the middle and the anterior and posterior cerebral arteries. This was plain in several places where the narrowed and atrophic vessels beyond the embolus again took up their calibre.

The heart was enormously hypertrophied. On the tricuspid and aortic valves were the vegetations of recent ulcerative endocarditis, with a perforation on the septum leading from the left to the right ventricle, just below the aortic ring.

Probably the sequence of events in this case was as follows : First, the abuse of alcohol, and the syhilitic infection ; then disease of the aortic valves resulting in their thickening and contraction ; next, in March last, the embolus lodging in the middle cerebral artery and producing the hemiplegia, and recently the ulcerative process engrafted on the sclerotic valves.

DR. WILLIAM OSLER said that we are apt to think that the cortical cerebral arteries have not special anastomoses, but an examination of many of these cases of total occlusion, particularly of the middle cerebral artery, shows that a collateral circulation can be established, usually, as in this case, by the enlargement of the anterior cerebral, so that the nutrition is maintained in the central gyri.